

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 May 2002 (02.05.2002)

PCT

(10) International Publication Number
WO 02/35870 A2

(51) International Patent Classification⁷: H04Q 7/32

(21) International Application Number: PCT/ZA01/00153

(22) International Filing Date: 4 October 2001 (04.10.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2000/5386 4 October 2000 (04.10.2000) ZA

(71) Applicant and

(72) Inventor: COLE, Mark [ZA/ZA]; 10 Gleneagle, Greenways Close, 7140 Strand (ZA).

(74) Agents: HAHN, Hans, H. et al.; Brian Bacon & Associates, 2nd Floor, Mariendahl House, Norwich On Main, Newlands, 7700 Cape Town (ZA).

(81) Designated States (national): AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA,

CH, CN, CO, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EC, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

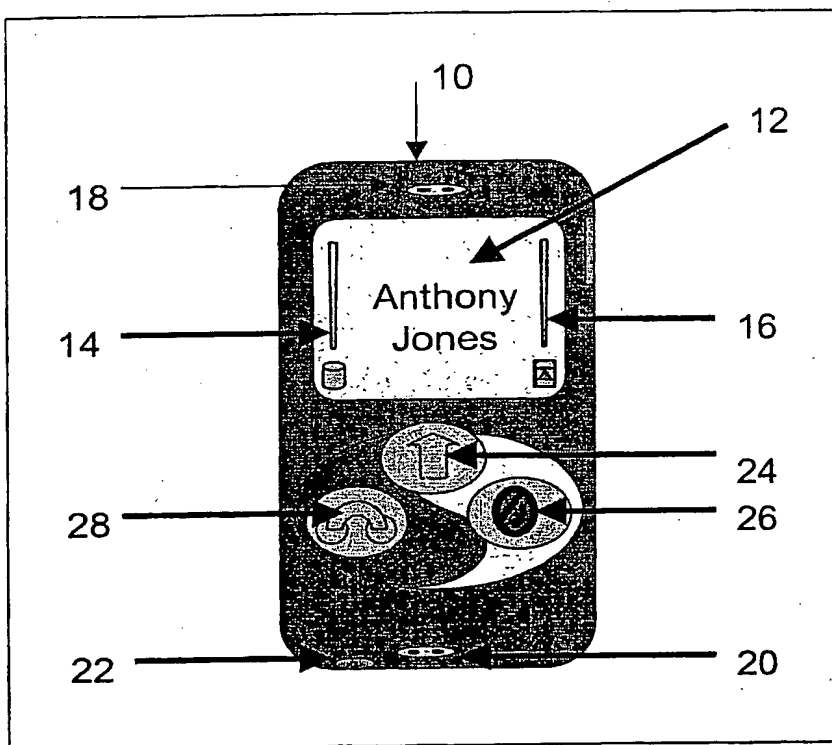
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A CELLULAR TELEPHONE AND AN EMERGENCY ASSISTANCE SYSTEM



(57) Abstract: The present invention provides a cell phone (10) which has a display (12) and three controls (24, 26, 28) but is devoid of a keypad. The cell phone is only able to make calls to the numbers which are stored on its SIM card. One of these numbers is that of an emergency call centre to which a call can be made in an emergency. There is a database, which is automatically accessed and the information therein displayed to an operator, when a call is made to the call centre.

WO 02/35870 A2

-1-

A CELLULAR TELEPHONE AND AN EMERGENCY ASSISTANCE SYSTEM

FIELD OF THE INVENTION

THIS INVENTION relates to cellular telephones, also known as mobile telephones, and to an emergency assistance system.

BACKGROUND TO THE INVENTION

A conventional cellular telephone (hereinafter referred to as a "cell phone") is not entirely suitable for use by children in, say, the six to sixteen age bracket. For younger children who are in an emergency situation, the sequence that must be followed to place a call from a cell phone can be a problem particularly as the child is under stress. For older children, unauthorized use of the cell phone for social purposes can either result in unwanted bills of substantial size or in purchased airtime having been used up when a real need arises to make a call.

The present invention provides a cell phone with restricted facilities and with simplified controls. It also provides an emergency assistance system of which the cell phone is one component.

BRIEF DESCRIPTION OF THE INVENTION

According to one aspect of the present invention there is provided a cell

-2-

phone which is devoid of a numeric keypad, the cell phone comprising a memory into which authorized telephone numbers can be stored, a first control means for enabling the user to scroll through the numbers stored in memory and select one, a second control means which, when activated, calls the selected number, and a third control means for enabling incoming calls to be answered.

The second control means for enabling a call to be made and the third control means for enabling a call to be answered can be constituted by a single control, or the cell phone can have separate call and answer controls.

To facilitate use of the cell phone said first control, when operated, preferably displays one at a time the numbers that are in memory. Alternatively, it can display a series of numbers and highlight one. Whilst the term "numbers" is used herein to indicate what is displayed, it will be understood that a name can be displayed to represent a number e.g. Mom, Dad etc to assist a child in making the desired call.

According to another aspect of the present invention there is provided an emergency assistance system comprising of a plurality of cell phones which are devoid of a numeric keypad each having telephone numbers stored therein which numbers are the only ones that can be called from the cell phones, at least one of the numbers stored on each cell phone being the number of an emergency call centre, a data base in which information pertaining to the user of the cell phone is stored, and means for retrieving and

-3-

displaying to the call centre operator information pertaining to a specific cell phone upon a call being made to the call centre number from the cell phone.

According to a further aspect of the present invention there is provided a method of providing assistance to a cell phone user which comprises storing, on the SIM card of a cell phone, telephone numbers which the cell phone is authorized to call, one of the stored numbers being that of a call centre, establishing a database on which is stored information pertaining to said user of the cell phone, and interfacing said database and a call from said cell phone so that the information on the database is displayed to an operator answering the call from the cell phone.

The present invention also provides a cell phone which includes an MP3 memory for receiving music in digital form via the GSM network.

In accordance with another aspect of the present invention there is provided a cell phone which is devoid of a numeric keypad, the cell phone comprising a memory into which authorized telephone numbers can be stored, a first control means for enabling the user to scroll through the numbers stored in memory and select one, a second control means which, when activated, calls the selected number, and a third control means for enabling incoming calls to be answered, the cell phone further including an MP3 memory for receiving music in digital form via the GSM network.

-4-

In accordance with yet another aspect of the invention there is provided the combination of a plurality of cell phones as defined in either of the two preceding paragraphs and a service provider having means for transmitting music in MP3 format over its GSM network.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the present invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings in which:-

Figure 1 is a representation of the front face of a cell phone in accordance with the present invention; and

Figure 2 diagrammatically illustrates an emergency assistance system in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring firstly to Figure 1, the cell phone 10 illustrated is of any one of the shapes and sizes that have become conventional in the industry. The cell phone 10 comprises a display 12 with a conventional charge indicator bar 14 to show the state of the battery and a conventional signal strength indicator bar 16. The cell phone display can default to the name of the person by whom the cell phone is used when there is no other information that needs to be displayed.

-5-

The speaker of the cell phone is at 18, its microphone at 20 and a socket for a charging jack at 22.

The cell phone does not have a conventional keypad and it is operated by three controls designated 24, 26 and 28. The control 24 is a scroll control, the control 26 is an on/off button and the control 28 is a call/receive button. The single button 28 could be replaced by two buttons, one for calling and one for answering. The way in which these controls are used will be described in more detail hereinafter.

The cell phone is standard in that it is dual band and operates on available cellular networks. The frequencies of such networks in South Africa are 900MHz and 1800MHz.

The software of the cell phone 10 differs from that of a standard cell phone in that certain functions, as will become apparent below, are omitted. As will be seen from Figure 1, the cell phone is devoid of a keypad. The cell phone's programming is such that only numbers which are in the SIM card memory can be called.

The emergency assistance system illustrated in Figure 2 comprises a cell phone 10 for each user, a call centre 30 to which calls can be made from the cell phones 10, a data base 32 on which information pertaining to the users is stored, and a plurality of point of sale outlets 34. These outlets are preferably the retail outlets which currently sell

-6-

cell phones and accessories.

The SIM card does not have a PIN and therefore the cell phone boots up automatically to the network on being switched on by means of the control 26 without the need to enter a PIN (an impossibility anyway as there is no keypad). As the cell phone can only call the numbers in its SIM card memory, the risk of theft is reduced. The SIM card and cell phone can also be linked via a SIM lock and therefore the cell phone can only be used with its SIM card and no other, and its SIM card will not operate another cell phone. SIM cards of stolen or lost cell phones can be blacklisted or blocked.

The procedure of establishing a customer's ability to use his or her cell phone and have access to the emergency assistance system is as follows.

At one of the sales outlets 34, a cell phone 10 is purchased. At the time of purchase the numbers which are to be authorized numbers, and which can consequently be called from the cell phone, are stored on the SIM card using the SIM programmer. The numbers can be, for example, those of close relatives and friends of the user, a school etc. One number entered in the memory of the SIM card is the number of the call centre 30. No numbers can be entered, altered or deleted by the user. Any addition, deletion or alteration to the stored numbers has to be via a SIM programmer at an outlet 34. Identification can be required before any addition, alteration or deletion is made thereby to reduce the risk of fraud. Also, at the time of purchase, details of the user such as full

-7-

names, residential address and home telephone number are loaded onto the database 32.

Details of persons to be contacted in the event of an emergency are also loaded onto the database. Any other significant information such as school attended, a medical condition etc, is also stored in the database.

By means of the scroll control 24, the numbers which have been entered on the SIM card can be displayed. Preferably the numbers are displayed one at a time but alternatively a series of numbers can be displayed with one highlighted. When the call button 28 is actuated the displayed number, or the displayed and highlighted number, is called. The user does not need to memorise any number. Merely the ability to read the display, or just to recognise the words, is sufficient to enable a call to be made to any of the numbers in memory. The numbers can be displayed not as a series of digits but as the name of a person i.e. Mom, Dad, Home etc.

Should the user be unable to make a connection to any of the numbers of friends and relatives, the call centre can be called. An incoming call to the call centre automatically retrieves and displays the information on the database. Thus the operator has, even before answering the call, information pertaining to the user of the cell phone.

The cell phone described is specifically adapted to fulfil the needs of children who only require the basic functionality of a cell phone without the need to learn multiple keystroke operations in order to operate it. It is also aimed at providing parents with peace of mind knowing that their children can at all times contact them, or be contactable, without

-8-

the burden of misuse of the cell phone and the resultant cost implications of an open line.

The call centre provides continuously available assistance in order to support the cell phone user when he or she is in an emergency situation and, when no family member or designated friend is available to assist.

Whilst the cell phone and system are specifically intended to assist children in emergency situations, the cell phone 10 and call centre can be used by sections of the public in addition to children.

The older generation do not have the same communication needs as the economically active population, but a cell phone is still desirable for basic communication with family and also when requiring assistance.

The current trend in cell phone technology is to provide higher levels of functionality, which widens the gap still further between what is commercially available and what the elderly actually require.

The following points have been identified from the point of view of the elderly user:

- a) The cell phone must be easy to use and require little if any mental exercise in using.
- b) Basic functions such as call originating and receiving should have priority.

-9-

c) The availability of the call centre to be able to provide assistance is deemed most important. The database 32 can cover all medical details and be able to respond with accurate treatment to individual medical emergencies when these occur.

In many companies and organisations, certain personnel are required to perform their functions outside of the company's premises necessitating their need for a cell phone. The control of the use of these cell phones creates many problems for management.

The tourist industry also requires the use of temporary cell phones for their operators and tourists to enable them to make easy contact with their designated hotels and travel bureaus.

The following points are significant for such users:

- a) Certain workers require a mobile communication device but not a full cell phone.
- b) The allocation of a cell phone as described above with its pre-authorised selection of numbers prevents unauthorised use and also allows the worker easy access to his/her department.
- c) Tourists can be temporarily supplied with a cell phone as described above through their tour operator for the duration of their stay in a country or place. This facility gives tour operators easy communication with their tourists. The tourists, on the other hand, have all

-10-

the numbers that they require during their stay pre-programmed into the cell phone with a help line via the call centre should they require any form of assistance in the absence of the tour operator or tour guide.

Within the primary intended market, that is, children between the ages of six and sixteen, three sub-groups can be distinguished. These are:-

A first group of 6 - 9 year olds where the cell phone has to provide call/answer facilities and access to the call centre. Accessories can be limited to a battery charger and a hands free headset. Multiple front covers with icons related to this age group can be sold with the cell phones. The display 12 is visible through an opening in the cover, and the controls 24, 26 and 28 protrude through holes in the cover.

A second group comprises the 10 - 12 year olds. The hardware is the same as for the first group but additional functions such as games and menu functions of tone, clock and alarm functions can be provided. The clip-on face covers can be designed to appeal to this age group, reflecting their heroes and interests.

The third group is the 13 - 16 year olds. They can be provided with additional features such as the ability to send SMS messages and play music via an MP3 download. These features can be provided by means of a plug-in keyboard and MP3 player. Styling of the face cover can be also aimed at this groups' level of interest.

-11-

The secondary markets (the elderly and those travelling) can be catered for by the cell phones described for groups one and two but differentiated by means of the face cover design.

In the case of pay-as-you-go clients, an additional airtime top-up number is loaded onto the SIM card. This allows pay-as-you-go users to call in and verbally relay their airtime voucher number to enable further air time to be purchased.

The SIM card memory can be locked to prevent the numbers of received calls from being stored onto the SIM card. This prevents use of the re-call facility to make a call to an unauthorised number.

The cell phone described above may, in a modified form, have means, including an MP3 memory, for receiving and storing music transmitted in digital format over the GSM network. It will be appreciated that this concept also extends to a cell phone which is conventional in form in that it has a numeric keypad. The service provider has facilities for transmitting the music in digital MP3 format.

-12-

CLAIMS:

1. A cell phone which is devoid of a numeric keypad, the cell phone comprising a memory into which authorized telephone numbers can be stored, a first control means for enabling the user to scroll through the numbers stored in memory and select one, a second control means which, when activated, calls the selected number, and a third control means for enabling incoming calls to be answered.
2. A cell phone as claimed in claim 1, wherein the second control means for enabling a call to be made and the third control means for enabling a call to be answered are constituted by a single control.
3. A cell phone as claimed in claim 1, and which has separate call and answer controls.
4. A cell phone as claimed in claim 1, 2 or 3, wherein said first control, when operated, displays one at a time the numbers that are in memory.
5. A cell phone as claimed in claim 1, 2 or 3, and which is such that the numbers from which calls are made to the cell phone are not stored in memory thereby to prevent such numbers, unless authorized numbers, being re-called.

6. An emergency assistance system comprising of a plurality of cell phones which are devoid of numeric keypads and each of which has telephone numbers stored therein which numbers are the only ones that can be called from the cell phones, at least one of the numbers stored on each cell phone being the number of an emergency call centre, a data base in which information pertaining to the user of the cell phone is stored, and means for retrieving and displaying to the call centre operator information pertaining to a specific cell phone upon a call being made to the call centre number from the cell phone.
7. A method of providing assistance to a cell phone user which comprises storing, on the SIM card of a cell phone, telephone numbers which the cell phone is authorized to call, one of the stored numbers being that of a call centre, establishing a database on which is stored information pertaining to said user of the cell phone, and interfacing said database and a call from said cell phone so that the information on the database is displayed to an operator answering the call from the cell phone.
8. The method claimed in claim 7, wherein communication between the cell phone and the call centre is two way voice communication.
9. A cell phone which includes an MP3 memory for receiving music in digital form via the GSM network.
10. A cell phone which is devoid of a numeric keypad, the cell phone comprising

-14-

a memory into which authorized telephone numbers can be stored, a first control means for enabling the user to scroll through the numbers stored in memory and select one, a second control means which, when activated, calls the selected number, and a third control means for enabling incoming calls to be answered, the cell phone further including an MP3 memory for receiving music in digital form via the GSM network.

11. In combination a plurality of cell phones as claimed in claim 9 or claim 10, and a service provider having means for transmitting music in MP3 format over its GSM network.

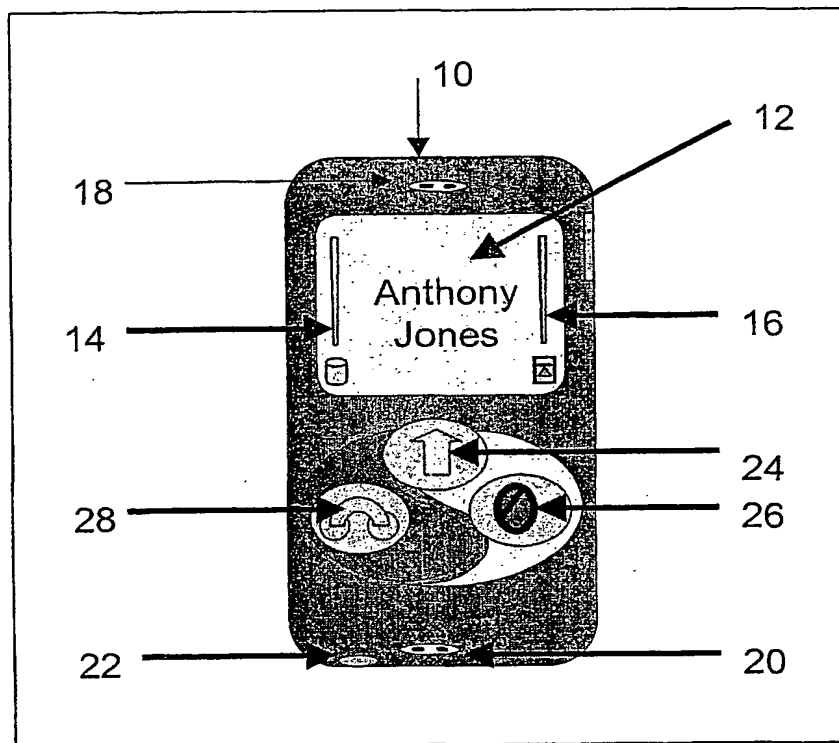


Figure 1

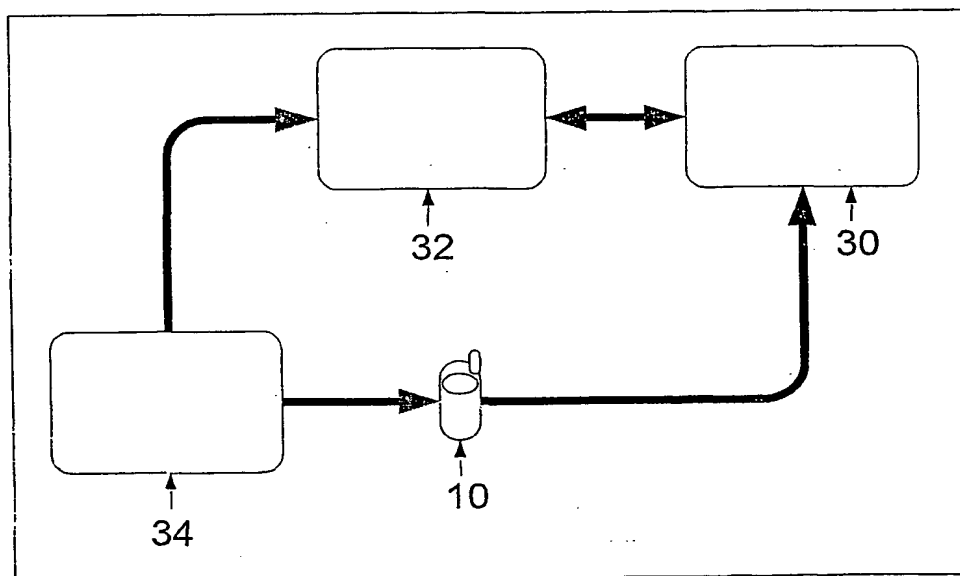


Figure 2

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 May 2002 (02.05.2002)

PCT

(10) International Publication Number
WO 02/035870 A3

(51) International Patent Classification⁷: **H04Q 7/32**
(21) International Application Number: **PCT/ZA01/00153**
(22) International Filing Date: **4 October 2001 (04.10.2001)**
(25) Filing Language: **English**
(26) Publication Language: **English**

(30) Priority Data:
2000/5386 4 October 2000 (04.10.2000) **ZA**

(71) Applicant and
(72) Inventor: **COLE, Mark [ZA/ZA]**; 10 Gleneagle, Greenways Close, 7140 Strand (ZA).

(81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

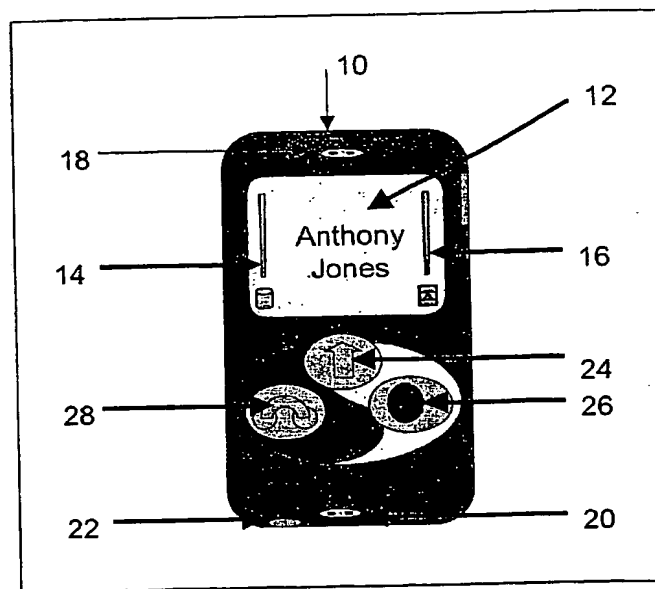
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(74) Agents: **HAHN, Hans, H. et al.**; Brian Bacon & Associates, 2nd Floor, Mariendahl House, Norwich On Main, Newlands, 7700 Cape Town (ZA).

Published:
— with international search report

[Continued on next page]

(54) Title: **A CELLULAR TELEPHONE AND AN EMERGENCY ASSISTANCE SYSTEM**



(57) Abstract: The present invention provides a cell phone (10) which has a display (12) and three controls (24, 26, 28) but is devoid of a keypad. The cell phone is only able to make calls to the numbers which are stored on its SIM card. One of these numbers is that of an emergency call centre to which a call can be made in an emergency. There is a database, which is automatically accessed and the information therein displayed to an operator, when a call is made to the call centre.

WO 02/035870 A3



— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
27 December 2002

INTERNATIONAL SEARCH REPORT

International Application No

PC1/ZA 01/00153

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04Q7/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 258 584 A (RANSOME IND LIMITED) 10 February 1993 (1993-02-10) abstract	1-5
Y	page 3, line 9 - line 12 page 4, line 3 - line 8 page 4, line 29 - line 30	6-8, 10, 11
X	US 5 749 052 A (SMOOT III CHARLES H ET AL) 5 May 1998 (1998-05-05) column 7, line 58 - line 62 column 10, line 3 - line 8 column 10, line 34 - line 38	1-5
Y	GB 2 282 936 A (JOHN DAVID ISEREL) 19 April 1995 (1995-04-19) abstract	6-8

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

30 October 2002

Date of mailing of the international search report

07/11/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel: (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Quaranta, L

INTERNATIONAL SEARCH REPORT

tional Application No

PCI/ZA 01/00153

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97 23104 A (ERICSSON GE MOBILE INC) 26 June 1997 (1997-06-26) abstract -----	6,7
X	WO 00 21275 A (MICROTALK CORP) 13 April 2000 (2000-04-13)	9
Y	page 46, line 14 - line 21 -----	10,11
X	DE 199 13 056 A (DEUTSCHE TELEKOM AG) 21 September 2000 (2000-09-21) page 1, line 35 - line 44 -----	9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/ZA 01/00153

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2258584	A	10-02-1993	EP 0524652 A2 US 5487108 A	27-01-1993 23-01-1996
US 5749052	A	05-05-1998	NONE	
GB 2282936	A	19-04-1995	NONE	
WO 9723104	A	26-06-1997	AU 1341397 A WO 9723104 A1 US 6078804 A	14-07-1997 26-06-1997 20-06-2000
WO 0021275	A	13-04-2000	US 6167251 A AU 1704800 A BR 9914263 A EP 1118206 A1 WO 0021275 A1 US 2001000505 A1	26-12-2000 26-04-2000 03-07-2001 25-07-2001 13-04-2000 26-04-2001
DE 19913056	A	21-09-2000	DE 19913056 A1	21-09-2000